What is claimed is:

1. A stable aqueous/aqueous emulsion system which is prepared with a hydrophilic polymer.

2. The method of preparing for preparing a stable aqueous/aqueous emulsion comprising steps of:

a) selecting appropriate polymeric materials for dispersed phase and continuous phase which are immiscible, biocompatible and have biased partition to the active ingredients to be encapsulated;

b) selecting appropriate surface modifiers which are charged, non-toxic, and possessing a moderate interfacial tension between the above two phases;

c) developing phase diagram for the above; and

d) dispersing the dispersed phase into the continuous phase under an appropriate shear stress.

3. The aqueous/aqueous emulsion system of claim 1 with polymeric surface modifier.

4. A method for encapsulating protein or peptide comprising the emulsion system of claim 1.

5. The method of claim 4 wherein the encapsulated protein or peptide is used for sustained release formulations or dry powder formulations.

6. An encapsulation comprising the emulsion system which is prepared with a hydrophilic polymer.

7. The encapsulation of claim 6 which encapsulates protein, peptide, virus, bacterium, or cell.

8. A liposome-based drug formulation which comprises the emulsion system of claim 1.

9. Viral, bacterial or cell microencapsulation comprising the emulsion system of claim 1.

10. A nano-sized preparation comprising the emulsion system of claim 1.

11. The nano-sized preparation of claim 10, wherein the preparation is nano-sized crystallization, nano-sized precipitation or other nano-sized assembly.

12. A diagnosis kit comprising the emulsion system of claim 1.